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two platform risers around that portion of circle on the platform; draw a line the length of stretch-out, which in this example is two and a half feet; at the ends of this line set up and down a half riser, and draw a chord, cutting right line in the centre; then set up and down a flyer, and connect at A and B; extend the rake of the flyers and connect at C, D on the right line—this gives angles for making easements by intersecting lines; after which set off for top and bottom lines the thickness of rail. The inside falling mould is obtained in the same manner. When the slabs are taken from the convex and concave sides of the wreath which gives the twist, then apply these moulds, centre to centre with wreath. If the stuff is scant, they may be raised or lowered parallel with centres; and when made secure, kerf in with a handsaw to the edges of the moulds and remove the surplus wood, and you have the top and bottom twist without the use of gauges or guess work, and as the plate shows, without the piece being wider in one place than another and no thicker than the width of the rail, and always sawed square from the face of the plank.

On Section 2 of the same plate is shown a stairs with winders, starting below the chord line and landing at the quarter circle. In some situations the space may not be of sufficient width to allow a large cylinder in the turning, and contraction has to take place somewhere. The steps are as narrow as convenience will allow, and the landing above, the same. The winders must have sufficient width to receive, without crowding, the ballusters; hence the necessity of making one part of the cylinder larger than the other, and the upper landing as laid down on this plate.

As before stated, all the lines are the centres, and as Fig. 1 has only one line, and a part of the elevation Fig. 2 the same, of course the width and thickness must be set off each way from this line. The steps are shown half their length, and the tread ten inches wide.

The plan is so plain that a further description is deemed unnecessary. The newel at No. 2 shows the height from the floor by adding the length of a short balluster to the shaft.

The elevation shows the stretch-out of the winders in the wreath, the ramp at the newel, and also at the beginning of the winders.

Fig. 3 is the lower wreath piece, with bevels and twist marked, and needs no further explanation.

Fig. 4 is the upper wreath piece, and is procured in the same way.

Figs. 5 and 6 are the convex and concave falling moulds.

The chord lines A and B, Figs. 5 and 6, are the stretch-out of the wreath, Fig. 4, at A and B, and shows the length of the convex and concave falling moulds. They are drawn to rise half a riser above the floor, so as to admit a long balluster on the landing above. To obtain the falling mould, draw lines on the rake and upper level, intersecting at C, Fig. 5; then take the stretch-out A, Fig. 4, and apply it at Fig. 5; then square down from rake and level, to intersect at D, then from this point draw the curve and width, and you have the convex, and by the process shown at Fig. 6 you have the concave moulds for the upper ramp.

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## Hand-Railing.

GEO. W. LONGSTAFF.

PLATE C shows a method of laying down the rail for a flight of circular stairs. Fig. 1 shows the plan of cylinder with risers cutting round the centre of rail and tangents; the joints are located at A, B, C, and D, making four pieces; the two wreaths from A to C are alike, and only one mould is required.

The rail is one pitch from E to A. Fig. 2 shows the elevation of steps and risers for first wreath, and Fig. 3 the landing wreath; these are drawn in the same manner as shown in previous plates, making the width of treads correspond with the points where the risers cut the tangents in Fig. 1; these elevations also give the exact height as shown; the first wreath, Fig. 2, is lifted for the newel, and the landing wreath, Fig. 3, runs half a rise above the floor; the wreaths A B and B C simply rise four risers, and are drawn as shown in Fig. 1. Figs. 4, 5, and 6 show the face moulds and application of the bevels.

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## Correspondence.

**WE invite communications from our readers in matters connected with the trades we represent. Be brief, courteous, and to the point.**

*Editor of Wood-Worker:*

I FULLY agree with "Apprentice" in his tirade against guess-workers; we have too many "rule o' thumb" mechanics in this country, and if our Mississippi friend and the Newark guesser would stick to rules and proper methods, they would find in the end that their work would be speedier and better done. It is science and good practical knowledge mechanics want, not guess-work rules.

R. M. G.

JOHNSTOWN, Pa., April 17, 1879.

*Editor of Wood-Worker:*

I AM very much pleased with the ILLUSTRATED WOOD-WORKER, and feel sure that if it maintains its present high standard it will be a success in every sense of the word.

While I admire the style in which it is got up and conducted, I would beg to say that I endorse the suggestions of your correspondent J. A. K. in the March number, with regard to having all plans and elevations drawn to scale. Few workmen can construct anything in correct proportion from the handsome designs published, owing to the want of accompanying scales. P. D.

Wallingford, Conn., April 15, 1879.

*Editor of the Illustrated Wood-Worker:*

I see by a note in your last issue that we are to have a treat from Professor R. Riddell, of Philadelphia, in the way of geometrical lines and their uses. I know his papers will be valuable, and I shall look forward with pleasure to see them, as I owe all my success in hand-railing to Mr. Riddell's valuable works on that subject. I would say to "Apprentice," who asks through your last issue for information regarding the best work on hand-railing, that I have tried all the lines on stair-building that have been published, from Peter Nicolson down to the present date, and find Riddell's system of elevating tangents to give the most satisfaction if properly used, for it always leads to success.

R. M. Laird.

Johnstown, Pa., April 15, 1879.

# Intercommunication.

This department is intended to furnish, for the benefit of all our readers, practical information regarding the art of manipulating wood by hand or machinery; and we trust that every reader of our paper will make the fullest use of it, both in asking and answering. All persons possessing additional or more correct information than that which is given relating to the queries published, are cordially invited to forward it to us for publication. All questions will be numbered, and in replying it will be absolutely necessary, in order to secure due insertion, that the NUMBER and TITLE of the question answered should be given; and in sending questions, the title of key-words of the question should be placed at the head of the paper. Correspondents should in all cases send their addresses, not necessarily for publication, but for future reference. We also request that all questions or answers be written on separate slips of paper, and addressed to the Editor. Notes of practical interest will be welcome at all times. When drawings are sent to illustrate answers to questions, or for full pages, they should be on separate slips, and should be drawn in ink on clean, white paper. Short questions, requiring short answers, may be asked and answered through the agency of postal cards.

When answers to questions are wanted by mail, the querist must send a stamp for return postage.

## Queries.

30. Stair Cylinder.—Will some reader of the Illustrated Wood-Worker inform me as to the best methods of getting the shape of a stringboard for the cylinder of a flight of stairs, height of riser and width of tread being given?—Jack Leg.

31. Teak Wood.—Where does teak wood grow, and what is it used for? Any information on this subject will greatly oblige.—Backwoodsman.

32. Mouldings.—Thanks to "Stickingboard" for the explanation he gave in the April number of the Wood-Worker regarding the method he adopts to stick circular mouldings. I do not thoroughly see through the method, and would be pleased to see it more fully explained by illustration, if it is not asking too much.—Puzzled.

33. Howe Trusses.—I would feel obliged to any reader that will inform me how the Howe Trusses are made. I think those who know try to keep the method a secret, for I have worked on Howe bridges for twelve months, and have never been permitted to learn the method.—Wm. E. H.

34. Cottage.—I would like if Mr. Stuart, of New London, Conn., would answer the following questions regarding the cottage he designed, and which is illustrated on Plate 16, February number of the Wood-Worker:

1. Are the stairs boxed or balluster ones?
2. Where the partition is not carried along on the right of chimney, is that intended to be the doorway to cellar (under the stairs)?
3. Is there to be a porch (indicated by the double line) in front, and permanently boarded or covered round?
4. What pitch to roof?
5. Is the plan, as it appears, drawn to the same scale?
6. Are there two windows side by side on each end?—P. D.

## Answers.

We wish it distinctly understood, that we do not hold ourselves responsible for the accuracy or reliability of answers furnished to this department by our correspondents.

We cordially invite our readers to take an active part in this department, as we are confident that much good can be accomplished by a free interchange of ideas and opinions in regard to subjects connected with the art of wood-working.

Many persons are afraid to write to a public journal because of their lack of literary attainments; to such we would say: Give us your ideas in such language as you can command, and leave the rest to us. It is ideas and opinions we want, such as may be of use to the workingman or amateur.

18. Mirror.—Clean the bare portion of the glass by rubbing it gently with fine cotton, taking care to remove any trace of dust and grease. If this cleaning is not done very carefully, defects will appear around the place repaired. With the point of a knife cut upon the back of another looking-glass around a portion of the silvering of the required form. but a little larger. Upon it place a small drop of mercury; a drop the size of a pin's head will be sufficient for a surface equal to the size of the nail. The mercury spreads immediately, penetrates the amalgam to where it was cut off by the knife, and the required piece may now be lifted and removed to the place to be repaired. This is the most difficult part of the operation. Then press lightly the renewed portion with cotton; it hardens almost immediately, and the glass presents the same appearance as a new one.—Pilfer.